CLAIMS

1. A system for improved implementation of a J2EE connector architecture on an application server, comprising:

5   a resource adapter for an Enterprise Information System;

         a set of system-level contracts between the resource adapter and an application server;

         a Common Client Interface capable of providing a client API for Java applications and development tools to access the resource adapter; and

10   a set of packaging and development interfaces that provide the ability for resource adapters to plug into J2EE applications in a modular manner.

2. A system according to claim 1, wherein:

         said set of system-level contracts comprises a contract for at least one
15 of connection management, transaction management, and security management.

3. A system according to claim 1, wherein:

         the a set of packaging and development interfaces supports any
20 resource adapter capable of being deployed in an application server supporting the J2EE Platform Specification.

4. A system according to claim 1, wherein:

         the set of system-level contracts includes a contract for connection
25 management that provides the application server with a plurality of pool connections to underlying Enterprise Information Systems.

5. A system according to claim 1, further comprising:

         an application component on the application server;

wherein the set of system-level contracts includes a contract for connection management that allows the application component to connect to an Enterprise Information System; and

5   whereby the contract for connection management provides the application server with a scalable application environment that can support a large number of clients requiring access to Enterprise Information Systems.

6. A system according to claim 1, further comprising:

a transaction manager on the application server;

10   wherein the set of system-level contracts includes a contract for transaction management between the transaction manager and the Enterprise Information System capable of supporting transaction access to resource managers for the Enterprise Information System.

15   7. A system according to claim 6, wherein:

the transaction management contract allows the application server to use the transaction manager to manage transactions across multiple resource managers.

20   8. A system according to claim 1, wherein:

the Common Client Interface is capable of enabling applications running on the application server to do tasks selected from the group consisting of: creating and managing connections to an Enterprise Information System, executing an interaction, and managing data records as input, output, or return
25   values.

9. A system according to claim 1, wherein:

the set of packaging and development interfaces are adapted to allow resources adapters to plug into a compliant J2EE application server in a modular
30   manner.

10. A system according to claim 1, wherein:

the resource adapter includes Java classes the implement J2EE Connector Architecture-specified contracts and Enterprise Information System-specific functionality.

11. A system according to claim 10, wherein:

the resource adapter further includes native libraries specific to the underlying Enterprise Information System.

12. A system according to claim 1, further comprising:

a resource adapter module containing the resource adapter.

13. A system according to claim 12, further comprising:

a deployment descriptor in the resource adapter module, the deployment descriptor for use in deploying the resource adapter on the application server.

14. A system according to claim 13, wherein:

the deployment descriptor is specific to the application server and defines operational parameters unique to the application server.

15. A system according to claim 1, wherein:

said resource adapter is capable of being deployed dynamically on the application server.

16. A system according to claim 1, further comprising:

a deployment component adapted to automatically detect and deploy a resource adapter on the application server.

17. A system according to claim 1, wherein:

the resource adapter further provides support for error logging and tracing.

5   18. A system according to claim 17, further comprising:

a deployment descriptor containing a logging-enabled element capable of indicating whether logging is enabled, as well as a log-filename element capable of specifying the name of the file in which to write the logging information.

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19. A system according to claim 1, further comprising:

a connection manager for enabling the resource adapter to provide services specific to the resource adapter, the services being selected from the group consisting of connection pooling, error logging and tracing, and security

15   management.

20. A system according to claim 19, wherein:

the connection manager can create physical connections to the underlying Enterprise Information System.

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21. A system according to claim 20, wherein:

the resource adapter is capable of having more than one connection manager instance per physical connection.

25   22. A system according to claim 20, further comprising:

a deployment descriptor specific to the resource adapter allowing the resource adapter to be linked to a second resource adapter, the resource adapter capable of sharing resources with the second resource adapter, thereby preventing the duplication of resources and only requiring the resource adapter

30   to modify a subset of resource adapter attributes.

23. A system according to claim 1, further comprising:

a deployment descriptor for the resource adapter;

wherein the set of system-level contracts includes a connection management contract and the deployment descriptor contains connection pool parameters capable of setting parameters selected from the group consisting of: the initial number of managed connections the application server attempts to allocate at deployment time, the maximum number of managed connections the application server allows to be allocated at any one time, the number of managed connections the application server attempts to allocate when filling a request for a new connection, whether the application server attempts to reclaim unused managed connections to save system resources, the time the application server waits between attempts to reclaim unused managed connections, the frequency of time to detect and reclaim connections that have exceeded their usage time, and the amount of usage time allowed for a connection.

24. A system according to claim 1, further comprising:

a deployment descriptor for the resource adapter and containing an initiating principal mapping, the mapping capable of being used at deployment time if connection pool parameters indicate that the application server should initialize connections.

25. A system according to claim 1, further comprising:

a security principal map for each deployed resource adapter, the map providing a mechanism to define appropriate resource principal values for resource adapter and Enterprise Information System sign-on processing.

26. A system according to claim 1, further comprising:

an external transaction manager on the application server capable of using a two-phase commit protocol to manage a transaction that spans one of multiple resource managers and multiple Enterprise Information Systems.

27. A system for improved implementation of a J2EE connector architecture on an application server, comprising:

a resource adapter for an Enterprise Information System;

a deployment descriptor containing deployment elements for the resource adapter;

a set of system-level contracts between the resource adapter and an application server, the set including a security management contract;

a password converter tool capable of being used with the security management contract to encrypt any passwords in the deployment descriptor;

a Common Client Interface capable of providing a client API for Java applications and development tools to access the resource adapter; and

a set of packaging and development interfaces that provide the ability for resource adapters to plug into J2EE applications in a modular manner.

28. A system according to claim 27, wherein:

the password converter tool is further adapted to parse an existing deployment descriptor containing non-encrypted passwords and create a new deployment descriptor containing encrypted passwords.

29. A system according to claim 1, further comprising:

a deployment descriptor containing a configuration element for the resource adapter, the configuration element allowing a user to override default deployment values for the resource adapter.

30. A system according to claim 1, further comprising:

a connection manager on the application server capable of managing and maintaining the size of the pool of connections to an Enterprise Information System.

31. A system according to claim 30, wherein:

the connection manager tries to match a request for a new connection to an Enterprise Information System, through the resource adapter, with an existing and available managed connection in the pool of connections.

5   32. A system according to claim 31, wherein:

the connection manager is further adapted to create a plurality of managed connections when an existing and available managed connection is not found.

10   33. A system according to claim 31, wherein:

the connection manager is further adapted to create each of the plurality of managed connections using the initiating principal and client request information contained in the request for a new connection.

15   34. A system according to claim 31, wherein:

the connection manager is further adapted to attempt to recycle a managed connection from the connection pool if a maximum number of connections is reached.

20   35. A system according to claim 30, wherein:

the connection manager is further adapted to monitor the activity of managed connections in the connection pool during the deployment of a resource adapter, the connection manager being capable of reducing the size of the connection pool if connection usage decreases and remains at the
25   decreased level over a period of time.

36. A system according to claim 30, wherein:

the connection manager is further adapted to automatically close a managed connection that has exhausted its usage time.

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